

Running Down th

By Lt. Dave Brooks

It was night, and I had just dropped my wingman off in the marshal stack after another max-endurance session of AIC. I then heard the master-caution tone and saw the master-caution light illuminate on the instrument panel. Looking at the left DDI, I then saw the hyd 2A, FCS, and flaps-off cautions staring back at me.

The Hornet's hydraulic system is divided into two sides: Hyd 1 is driven by the left engine, and hyd 2 by the right engine. These are further split into two circuits, each of which owns or shares responsibilities for actuating flight controls and (hyd 2 only) operating other hydraulic components. In the case of flight controls, switching-valves allow hydraulic pressure from the functioning side to take over if you lose an engine. However, this is not the case for non-flight-control actuators, such as landing gear. Hyd 2A is the circuit responsible for operating the landing gear and the refueling probe. These items are extended by using hydraulic accumulators.

A look at the FCS page verified my suspicion: X's in both channels (2 and 3) of the right leading-edge flaps (LEFs). The flaps were stuck at approximately 7-degrees down. NATOPS states that in the case of a hyd 2A failure, combined with a right LEF failure, a reset of the FCS should not be attempted. In other words, I was stuck with the flaps as they were. After discussing the situation with my rep in CATCC, I followed the conga line down via radar vectors toward the final bearing. Approaching 15 miles, I used pressure from the APU and brake accumulators to emergency-extend the gear. All three indicated down and locked within

15 seconds. After recharging both accumulators with the HYD ISOL ORIDE switch, I emergency-extended the refueling probe.

With the right LEF frozen at 7 degrees, NATOPS calls for a half-flap approach not to exceed 7 degrees AOA. This minimizes the effects of the split-flap condition. This creates a flatter-than-normal approach attitude, and, what I thought was a little-high pass actually resulted in a bolter on the first attempt.

Although I was well above dirty bingo numbers, I was directed to tank. Unfortunately, the tankers had been instructed to head to the nearest divert field during any recovery tanking. Since North Island was off the bow at 140 miles, I found myself whipping the ponies with gear and flaps down, attempting to run down the S-3 (a new experience). I did not realize I had selected flaps AUTO, which means the flaps will not return to AUTO from HALF or FULL unless GAIN ORIDE is selected. This means I was in a less than ideal configuration for saving fuel as I ran down the tanker. After several requests for the tanker to turn, I was able to join and take my 2,000 pounds of JP-5. Tanking dirty, with split flaps, was a new experience for me. The aircraft was a bit more squirrely, but it was not especially hard to get into or stay in the basket.

Because we had been flying away from the ship the entire time, I now had to backtrack nearly 30 miles, all the while burning what fuel I had received. When I got back on the ball, I was at the exact fuel state I would have been had I simply gone around in the bolter pattern. Using the lessons learned (by me and paddles) from the previous attempts, I flew a successful pass, let-


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ting the ball sag ever-so-slightly crossing the ramp for an OK 3-wire.

The postflight inspection revealed a cracked hydraulic line in the port wheelwell that had depleted circuit pressure. The first lesson learned was actually



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one re-learned: 90 percent of the time when something goes wrong, it's a pitch-black night behind the boat and 100 miles from land. The second lesson had to do with handling qualities and the effects of a flatter attitude during a low-AOA, split-flap approach. Finally, a little post-flight study taught me to consider fuel conservation when using GAIN ORIDE while tanking, which I should already have known. It's nice to have a rep backing you up in CATCC, but his digging through the big book is no substitute for the basic systems knowledge you need each time you walk to the jet. 

Lt. Brooks flies with VFA-115.



FA-18 photo by Matthew J. Thomas
Photo-composite by Patricia Eaton